

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

KT IMAGING USA, LLC,

Plaintiff

Civil Action No.: 6:21-cv-01002

-against-

APPLE INC.,

Defendant

**Jury Trial Demanded**

**COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff KT Imaging USA, LLC (“KTI” or “Plaintiff”), by way of this Complaint against Defendant Apple Inc. (“Apple” or “Defendant”), alleges as follows:

**PARTIES**

1. Plaintiff KT Imaging USA, LLC is a limited liability company organized and existing under the laws of the State of Texas, having its principal place of business at 106 E 6<sup>th</sup> Street, Suite 900, Austin, TX 78701.
2. On information and belief, Defendant Apple is a corporation organized and existing under the laws of the State of California. Apple maintains a regular and established place of business in this Judicial District at 12545 Riata Vista Cir, Austin, Texas 78727, as well as other locations in this Judicial District (*e.g.*, 2901 S. Capital of Texas Hwy, Austin, Texas 78746; 3121 Palm Way, Austin, Texas 78758; 7400 San Pedro Avenue, San Antonio, Texas 78216; and 15900 La Cantera Parkway, San Antonio, Texas 78256). In November 2019, Apple stated that it had approximately 7,000 employees in Austin and that it expected to open, in 2022, a \$1 billion, 3-million-square-foot campus with capacity for 15,000 employees in this Judicial District. *See*

<https://www.apple.com/newsroom/2019/11/apple-expands-in-austin/>. Apple is registered to do business in the State of Texas and has been since at least May 16, 1980. Apple may be served with process through its registered agent, CT Corporation System, at 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

3. On information and belief, Defendant Apple, either itself and/or through the activities of its subsidiaries, makes, uses, sells, offers for sale, and/or imports throughout the United States, including within this District, products that infringe the Patents-in-Suit, defined below.

#### **JURISDICTION AND VENUE**

4. This is an action under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, for infringement by Apple of claims of U.S. Patent No. 7,196,322, U.S. Patent No. 7,511,261, U.S. Patent No. 7,598,580, U.S. Patent No. 8,004,602, and U.S. Patent No. 8,314,481 (collectively “the Patents-in-Suit”).

5. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Apple is subject to personal jurisdiction of this Court because, *inter alia*, on information and belief, (i) Apple maintains a regular and established place of business in this Judicial District located at 12545 Riata Vista Cir, Austin, Texas 78727; (ii) Apple sells products and services to customers in this Judicial District, including from Apple retail stores (*e.g.*, 2901 S. Capital of Texas Hwy, Austin, Texas 78746; 3121 Palm Way, Austin, Texas 78758; 7400 San Pedro Avenue, San Antonio, Texas 78216; and 15900 La Cantera Parkway, San Antonio, Texas 78256); (iii) the patent infringement claims arise directly from Apple’s continuous and systematic activity in this Judicial District; and (iv) actively employs and seeks the services of Texas residents in this Judicial District.

7. Venue is proper as to Apple in this Judicial District under 28 U.S.C. § 1400(b) because,

*inter alia*, on information and belief, Apple has a regular and established place of business in this Judicial District located at 12545 Riata Vista Cir, Austin, Texas 78727, and has committed acts of patent infringement in this Judicial District and/or has contributed to or induced acts of patent infringement by others in this Judicial District.

### **BACKGROUND**

8. On March 27, 2007, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,196,322 (“the ’322 Patent”), entitled “Image Sensor Package.”
9. On March 31, 2009, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,511,261 (“the ’261 Patent”), entitled “Image Sensor Module Structure with Lens Holder Having Vertical Inner and Outer Sidewalls.”
10. On October 6, 2009, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,598,580 (“the ’580 Patent”), entitled “Image Sensor Module Package Structure with Supporting Element.”
11. On August 23, 2011, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,004,602 (“the ’602 Patent”), entitled “Image Sensor Structure and Integrated Lens Module Thereof.”
12. On November 20, 2012, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,314,481 (“the ’481 Patent”), entitled “Substrate Structure for an Image Sensor Package and Method for Manufacturing the Same.”
13. KTI is the assignee and owner of the right, title, and interest in and to the Patents-in-Suit, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them.
14. By letter dated October 31, 2019, KTI notified Apple of the existence of the ’322 Patent,

the '261 Patent, the '602 Patent, and the '481 Patent; notified Apple that it infringes the '261 Patent, the '602 Patent, and the '481 Patent; identified an exemplary infringed claim and infringing products; and invited Apple to hold a licensing discussion with KTI.

15. Apple has infringed and continues to infringe the Patents-in-Suit by making, using, selling, or offering for sale in the United States, or importing into the United States mobile devices, such as smartphones, tablets, and laptops with front and/or rear image sensors. Attachment A to this Complaint provides a non-exhaustive listing of Accused Products. Attachment B to this Complaint provides a listing of Exhibits comprising exemplary teardown images for certain Accused Products.

**COUNT I: INFRINGEMENT OF THE '322 PATENT BY APPLE**

16. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

17. On information and belief, Apple has infringed the '322 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

18. For example, on information and belief, Apple has infringed and continues to infringe at least claim 1 of the '322 Patent by including an image sensor module in the Apple iPad (4th Generation) product. *See* Ex. 1 (cross-sectional image of the Apple iPad (4th Generation) front facing image sensor). The image sensor module structure in the Accused Products comprises a substrate having an upper surface, and a lower surface on which second electrodes are formed. *See* Ex. 2 (cross-sectional image of the Apple iPad (4th Generation) front facing image sensor).

The image sensor module structure in the Accused Products further comprises a frame layer arranged on the upper surface of the substrate, a cavity formed between the frame layer and substrate, and a plurality of first electrodes are formed on the frame layer. *See* Exs. 3 and 4

(Apple iPad (4th Generation) front facing image sensor). The image sensor module structure in the Accused Products further comprises a photosensitive chip mounted on the upper surface of the substrate and located within the cavity, and electrically connected to the first electrodes of the frame layer. *See Exs. 1-4 (Apple iPad (4th Generation) front facing image sensor).* The image sensor module structure in the Accused Products further comprises a lens holder having an upper end face, a lower end face, and an opening penetrating through the lens holder from the upper end face to the lower end face, the upper end of the opening formed with an internal thread and the lower end of the opening formed with a breach, so that the internal diameter of the upper end of the opening is smaller than the lower end of the opening, the lens holder adhered on the upper surface of the substrate by glue, wherein, the frame layer is located within the breach of the lens holder. *See Exs. 1 and 4 (Apple iPad (4th Generation) front facing image sensor).* The image sensor module structure of the Accused Products further comprises a lens barrel having an upper end face, a lower end face, and an external thread screwed to the internal thread of the lens holder. *See Ex. 1 (cross-sectional image of the Apple iPad (4th Generation) front facing image sensor).*

19. On information and belief, Apple has induced infringement of the '322 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

20. On information and belief, Apple has committed the foregoing infringing activities without a license.

**COUNT II: INFRINGEMENT OF THE '261 PATENT BY APPLE**

21. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

22. On information and belief, Apple has infringed the '261 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States, or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

23. For example, on information and belief, Apple has infringed and continues to infringe at least claim 1 of the '261 Patent by including an image sensor module structure in the Apple iPhone 6s product. *See* Ex. 5 (cross-sectional image of the Apple iPhone 6s front facing image sensor). The image sensor module structure in the Accused Products comprises a substrate having a horizontal upper surface on which first electrodes are formed, and a lower surface on which second electrodes are formed, wherein the first electrodes are correspondingly and electrically connected to the second electrodes. *See* Exs. 5 and 6 (Apple iPhone 6s front facing image sensor). The image sensor module structure in the Accused Products further comprises a photosensitive chip mounted on the upper surface of the substrate, and electrically connected to the first electrodes of the substrate by wires. *See* Ex. 5 (cross-sectional image of the Apple iPhone 6s front facing image sensor). The image sensor module structure in the Accused Products further comprises a lens holder having an upper end face, a lower end face, and an opening penetrating through the lens holder from the upper end face to the lower end face, wherein an upper end portion of the opening is formed with an internal thread and a lower end portion of the opening is formed with a breach so that an internal diameter of the upper end portion of the opening is smaller than an internal diameter of the lower end portion of the

opening, the lens holder is adhered to the upper surface of the substrate by glue, the photosensitive chip is located within the opening of the lens holder, the glue is filled within the breach of the lens holder and coated over the wires, the lens holder has a vertical inner sidewall and a vertical outer sidewall, the vertical inner sidewall is connected to the breach at a portion, which is located at a level higher than a level of the photosensitive chip, a portion of each of the wires is located under the breach, and an outer diameter of the lens holder corresponding to the internal diameter of the upper end portion of the opening is substantially equal to an outer diameter of the lens holder corresponding to the internal diameter of the lower end portion of the opening. *See Ex. 5 (cross-sectional image of the Apple iPhone 6s front facing image sensor).* The image sensor module structure in the Accused Products further comprises a lens barrel having an upper end face, a lower end face, and an external thread crewed to the internal thread of the lens holder. *See Ex. 5 (cross-sectional image of the Apple iPhone 6s front facing image sensor).*

24. On information and belief, Apple has induced infringement of the '261 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

25. On information and belief, Apple has committed the foregoing infringing activities without a license.

26. On information and belief, Apple knew the '261 Patent existed and knew of exemplary infringing Apple products while committing the foregoing infringing acts while committing the foregoing infringing acts, thereby willfully, wantonly and deliberately infringing the '261 Patent.

**COUNT III: INFRINGEMENT OF THE '580 PATENT BY APPLE**

27. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

28. On information and belief, Apple has infringed the '580 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

29. For example, on information and belief, Apple has infringed and continues to infringe at least claim 1 of the '580 Patent by including an image sensor module package structure with a supporting element in the Apple iPad Mini 4 product. *See* Ex. 7 (cross-sectional image of the Apple iPad Mini 4 rear facing image sensor). The image sensor module package structure in the Accused Products comprises a chip having a plurality of light-sensing elements arranged on a light-sensing area of a first surface of the chip, a plurality of first conducting pads electrically connected to the light-sensing elements, and at least one conducting channel passing through the chip and electrically connected to the first conducting pads at one end. *See* Exs. 7-11 (Apple iPad Mini 4 rear facing image sensor). The image sensor module package structure further comprises the supporting element, which is a flat plate having an opening, a first coupling surface, and a second coupling surface, wherein the opening corresponds to the light-sensing area and the first coupling surface is combined with the first surface. *See* Exs. 7 and 8 (cross-sectional images of the Apple iPad Mini 4 rear facing image sensor). The image sensor module package structure further comprises a light-transmitting element combined with the second coupling surface. *See* Ex. 8 (cross-sectional image of the Apple iPad Mini 4 rear facing image

sensor).

30. On information and belief, Apple has induced infringement of the '580 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

31. On information and belief, Apple has committed the foregoing infringing activities without a license.

**COUNT IV: INFRINGEMENT OF THE '602 PATENT BY APPLE**

32. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

33. On information and belief, Apple has infringed the '602 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in the United States, or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

34. For example, on information and belief, Apple has infringed and continues to infringe at least claim 1 of the '602 Patent by including an image sensor structure with an integrated lens module in the Apple iPhone 8 Plus product. *See* Ex. 12 (cross-sectional image of the Apple iPhone 8 Plus front facing image sensor). The image sensor structure in the Accused Products comprises a chip having a plurality of light-sensing elements arranged on a light sensing area of a first surface of the chip, a plurality of first conducting pads arranged around the light-sensing area and electrically connected to the light-sensing elements, and at least one conducting channel

passing through the chip and electrically connected to the first conducting pads at one end as well as extending along with a second surface of the chip. *See* Exs. 12-15 (Apple iPhone 8 Plus front facing image sensor). The image sensor structure in the Accused Products comprises a lens module comprising a holder having a through hole and a contact surface on a bottom of the holder, wherein the contact surface is combined with the first surface, and at least one lens completely embedded inside the through hole and integrated with the holder. *See* Ex. 12 (cross-sectional image of the Apple iPhone 8 Plus front facing image sensor).

35. On information and belief, Apple has induced infringement of the '602 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

36. On information and belief, Apple has committed the foregoing infringing activities without a license.

37. On information and belief, Apple knew the '602 Patent existed and knew of exemplary infringing Apple products while committing the foregoing infringing acts while committing the foregoing infringing acts, thereby willfully, wantonly and deliberately infringing the '602 Patent.

#### **COUNT V: INFRINGEMENT OF THE '481 PATENT BY APPLE**

38. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

39. On information and belief, Apple has infringed the '481 Patent pursuant to 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, by making, using, offering to sell, selling in

the United States, or importing into the United States the Accused Products and all other products with substantially similar imaging sensors.

40. For example, on information and belief, Apple has infringed and continues to infringe at least claim 1 of the '481 Patent by including a substrate structure for an image sensor package in the Apple Macbook Air (A1466) product. *See Ex. 16* (cross-sectional image of the Apple Macbook Air (A1466) image sensor). The substrate structure in the Accused Products comprises a bottom base having an upper surface formed with a plurality of first electrodes, and a lower surface formed with a plurality of second electrodes, wherein an insulation layer is coated between first electrodes and in direct surface contact with the upper surface of the bottom base. *See Ex. 16* (cross-sectional image of the Apple Macbook Air (A1466) image sensor). The substrate structure in the Accused Products comprises a frame layer arranged on and in direct surface contact with the first electrodes and the insulation layer to form a cavity together with the bottom base, wherein the insulation layer is interposed between the bottom base and the frame layer. *See Ex. 16* (cross-sectional image of the Apple Macbook Air (A1466) image sensor).

41. On information and belief, Apple has induced infringement of the '481 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, its partners, resellers, distributors, customers, and end users, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, the Accused Products by, among other things, providing the accused products and incorporated image sensor technology, specifications, instructions, manuals, advertisements, marketing materials, and technical assistance relating to the installation, set up, use, operation, and maintenance of said products.

42. On information and belief, Apple has committed the foregoing infringing activities

without a license.

43. On information and belief, Apple knew the '481 Patent existed and knew of exemplary infringing Apple products while committing the foregoing infringing acts while committing the foregoing infringing acts, thereby willfully, wantonly and deliberately infringing the '481 Patent.

**PRAYER FOR RELIEF**

WHEREFORE, KTI prays for judgment in its favor against Apple for the following relief:

- A. Entry of judgment in favor of KTI against Apple on all counts;
- B. Entry of judgment that Apple has infringed the Patents-in-Suit;
- C. Entry of judgment that Apple's infringement of the '261 Patent, the '602 Patent, and the '481 Patent has been willful;
- D. An order permanently enjoining Apple from infringing the Patents-in-Suit;
- E. Award of compensatory damages adequate to compensate KTI for Apple's infringement of the '322 Patent and the '580 Patent, in no event less than a reasonable royalty as provided by 35 U.S.C. § 284;
- F. Award of compensatory damages adequate to compensate KTI for Apple's infringement of the '261 Patent, the '602 Patent, and the '481 Patent, in no event less than a reasonable royalty trebled as provided by 35 U.S.C. § 284;
- G. Award of reasonable attorneys' fees and expenses against Apple pursuant to 35 U.S.C. § 285;
- H. KTI's costs;
- I. Pre-judgment and post-judgment interest on KTI's award; and
- J. All such other and further relief as the Court deems just or equitable.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38 of the Fed. R. Civ. Proc., Plaintiff hereby demands trial by jury in this action of all claims so triable.

Dated: September 28, 2021

Respectfully submitted,

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